

0LB

85-6

Mar 4 1956

A BIMONTHLY PUBLICATION DEVOTED TO THE STUDY OF BEETLES

The Coleopterists' Bulletin

Volume VIII

October and December, 1954

FEB 16 1956
Nos. 5 & 6

UNIVERSITY OF ILLINOIS

Published bimonthly beginning with February by the DEPARTMENT OF BIOLOGY, SAINT JOHN FISHER COLLEGE, Rochester 18, New York. Terms of subscription: \$4.00 per year, both domestic and foreign, payable in advance. Remittances should be made payable to Ross H. Arnett, Jr. Back numbers are available.

The general policies of The Coleopterists' Bulletin are determined on the recommendation of the following Advisory Board: Dr. Ross T. Arnett, Jr., Head, Department of Biology, St. John Fisher College; Dr. Henry Dietrich, Professor of Entomology, Cornell University; Dr. J. Gordon Edwards, Professor of Entomology, San Jose State College; Dr. Eugene J. Gerberg, Insect Control and Research, Inc., Baltimore, Md.; Dr. Melville H. Hatch, Professor of Zoology, University of Washington, and Mr. George B. Vogt, Entomologist, U. S. Department of Agriculture.

Entered as second-class matter at the post office at Rochester, N. Y.

A KEY TO THE WORLD GENERA OF MALACHIIDAE

By M. Y. MARSHALL, M.D.¹

When attempting to identify specimens of exotic Malachiidae sent to me for that purpose, I have been seriously handicapped by the absence of any published key to all the described genera of the family, an absence which became apparent when I found that there was no volume on the Malachiidae in Wytsman's monumental work on the "Genera-Insectorum." The present paper is an attempt to supply that deficit, which effort has involved the expenditure of considerable time, extending over a period of two or three years, as well as a certain amount of money, in accumulating the original descriptions and actual examples of as many of the genera as possible.

The tentative and preliminary character of the key here offered becomes obvious when it is considered that the most recently published catalog of the family is the volume by Dr. J. Greiner (1937), in the "Catalogus Coleopterorum," and that since that time several additional genera have been described. Mr. A. M. J. Evers, of Krefeld, Germany, has been working for some time on a supplement to that volume and he informs me that it will still be a "couple of years" before the Supplement can be published. When, and if, such a supplement does appear, it is my hope to be able to revise the present key and bring it up to date. Also, there has been considerable controversy, especially between Messrs. Champion and Pic, concerning the status of certain genera and subgenera, so that a critical generic revision of the family, which is much needed, will have to await the accumulation of more material than

¹Murfreesboro, Tenn.

is at present available to me. In spite of these various drawbacks, and of the imperfections which they necessarily entail, it is hoped that the following key will be found useful to students of this small but interesting family of beetles and that it will serve as a basis and stimulus for further work.

GEOGRAPHICAL DISTRIBUTION

The family Malachiidae, which is most closely related to the Dasytidae and which was combined by Leng (1920) with the latter family under the name Melyridae, appears to have originated in the Mediterranean area, since it is in that area that it is the richest in both genera and species. Greiner (1937) recognized 84 genera in the entire family. Abeille de Perrin (1890-91), in his "Malachides d'Europe et les pays voisins," which is the above mentioned "Mediterranean area," lists 24 genera. Leng (1920) recognizes only 12 genera from North America north of Mexico, an area about comparable in size to that covered by Abeille de Perrin. Champion (1914) lists 9 genera from Mexico and Central America, Blackwelder (1945) lists 14 genera from South America and Lea (1909) lists 6 genera from the Australian area, including New Zealand and Tasmania. These are the only works, to my knowledge, dealing with the Malachiidae of various faunal areas, except, of course, the standard European texts, which are covered by Abeille de Perrin and by Jakobson (1911), in "Käfer Russlands," which latter I have been unable to obtain. It is regrettable that there is no volume containing the Malachiidae in the "Fauna of British India," which includes Ceylon and Burma. A search through Greiner's (1937) volume in the "Catalogus Coleopterorum" gives the following results for the remaining large faunal areas. Southern Asia, including India, Malaya, Indonesia and the Philippines, 26 genera; Oriental area, including China, Japan and Formosa, 9 genera; Pacific area, 3 genera; Africa, exclusive of North Africa, 30 genera; North and Central Asia, 12 genera.

Thus it appears that the family spread from the Mediterranean area through the great land masses, toward the east to southern Asia and toward the south to central and southern Africa. There appears to have been a secondary center of development in southern Africa, with the evolution of a number of small genera centering around the genus *Hedybius*, none of which have extended beyond that area. If one considers only the number of genera, the South Asia area might also qualify as the original home of the family. Two considerations, however, make such a conclusion highly improbable. The first is that many of the largest and most widely distributed genera have only one or two spe-

cies in this area, whereas they are represented by dozens of species in the Mediterranean area; the second is that, if the South Asia area were the original home of the family, one would expect to find a greater number of genera in the adjacent Australian area. Still a third consideration is that the mere extent of the South Asia area would lead one to expect it to contain a larger number of genera than the Mediterranean area.

The presence of 14 genera in South America might lead one to suppose that continent is as well supplied with Malachiidae as the North American continent, but such is not the case. Mr. Walter Wittmer, of Buenos Aires, who is a world authority on Malachiidae, informs me that these beetles are rarely met with in South America and that he has never taken more than one or two specimens of a species at any time. For instance, in several weeks of collecting, last year, in northern Argentina and southern Brazil, he was able to secure not more than half a dozen specimens in this family. This is quite a contrast to the situation in North America, where many collections contain series of several hundred specimens of the same species. I have also met with the same situation in attempting to arrange exchanges with the leading museums in such places as India, Java, Japan, Madagascar, Australia and New Zealand, the reply being monotonously the same, i.e., their collection of Malachiidae was very small and did not contain over one or two specimens in any one species.

The North American continent appears to have received its malachiid fauna from Europe, just how or when I will not pretend to say; but most of our genera also occur in Europe and we have several species which have been obviously introduced from that area, one, *Anthocomus bipunctatus* Herrer, so recently that it has not yet found its way into our catalogs. There is also a secondary center of development on our Pacific Coast, where such genera as *Endeodes* and *Tanaops* appear, the latter genus obviously an offshoot from the widely distributed *Attalus* and still in a state of considerable lability.

The Pacific area, almost devoid of Malachiidae, has one species each in such widely separated localities as the Solomon Islands, the Marquesas, the Sandwich Islands and Christmas Island. It is a minor mystery how the species *Carphuroides pectinatus*, described by Sharp (1885) as a *Helcogaster*, ever reached its present place of abode in Honolulu. It was obviously introduced, however, since it also occurs, together with its relatives, in the Indonesian and Oriental areas. A careful study of some of the larger genera, of worldwide distribution, such as *Attalus*,

would undoubtedly throw more light on the question of distribution but, since this is not primarily a study in zoogeography, I will content myself with the above observations.

In preparing the following key, I have adopted the same characters for the primary divisions of the Malachiinae as were used by Abeille de Perrin, both because his is the most extensive key to date and because I am not able to discover any better characters for the purpose. I have also used his names for these groups, since they are already well known to students of the family throughout the world and since I regard the useless compounding of names as objectionable. It has not been deemed necessary to list the bibliographical references to the original descriptions of the various genera, or to discuss each genus as to its size and detailed distribution, since this key is intended to be used in connection with the most recent catalog of the family, i.e., that of Greiner (1937) in Junk's *Coleopterorum Catalogus*, which furnishes practically all of the information in question. Likewise, subgenera have been ignored, as it is not felt that they have a place in keys of this character.

In the case of several genera it has not been possible to determine from the literature whether the genus belongs under the *Malachiaires* or the *Colotaires*, since many authors failed to make any mention of the position of the antennal foveae. Under such circumstances, when there was no specimen available to settle the point, the genus has been placed in both sections of the key. The same difficulty has at times arisen in deciding whether to place a given genus under the *Malachiaires* or the *Troglopires*. It would help matters considerably if the *Troglopires* could be separated first but, unfortunately, this cannot be done, since several species of *Malachius* have the head variously grooved and spined. Certain genera, such as *Hedybius*, are necessarily treated under two sections of the key. It is quite possible that this genus should be divided, but I am not sufficiently familiar with the numerous species to express any more definite opinion.

The character used by Abeille de Perrin for separating the *Malachiaires* from the *Colotaires*, i.e., whether the antennae are inserted nearer to the eyes than to the "anterior border of the head," is not entirely satisfactory. Abeille was the only author who consistently noted the position of the antennal insertions in his generic descriptions and it is not clear whether he considered the "anterior border of the head" to be the frontoclypeal suture, the anterior margin of the clypeus or the anterior margin of the labrum. The frontoclypeal suture is often indistinct or wanting and the matter is further complicated by the fact that

in many of the genera the membranous connection between the clypeus and the labrum is more or less extended, thus varying the apparent length of the front portion of the head. In case the genus sought is not found under the *Malachiaires*, it is suggested that the student look for it under the *Colotaires*, and vice versa. No difficulty should be encountered with the other characters separating the primary divisions of the family.

Key to the Genera

1. First protarsal segment in the male with a black comb beneath; tarsal joints 2-4, 3 and 4, or 4 dilated and bilobed; terminal abdominal segments in the male simple; elytra abbreviated in both sexes. **Carphurinae**..... 2
 First protarsal segment in the male without a black comb. **Malachiinae**..... 11
2. Elytra strongly dilated; prothorax abruptly constricted at base. New Guinea, Moluccas.....**Choresine** Pascoe
 Elytra parallel or slightly widened posteriorly..... 3
3. Elytra (male) sinuate and strongly dehiscent at apex. New Guinea.....
**Brachyhedybius** Pic
 Elytra truncate or rounded at apex..... 4
4. First antennal segment (male) strongly dilated. Key Islands.....
**Carphuromorphus** Pic
 First antennal segment cylindrical or slightly dilated..... 5
5. Elytra tuberculate at base. Indonesia, Fiji.....**Microcarphurus** Pic
 Elytra not tuberculate at base..... 6
6. Antennae flabellate in the male. Australia, New Guinea, Indonesia.....
**Balanophorus** Macleay
 Antennae not flabellate in the male..... 7
7. Prothorax narrowed anteriorly and posteriorly, the disc strongly convex; head flattened. New Guinea.....**Carphurotroglops** Pic
 Prothorax more or less narrowed posteriorly, the disc flat or slightly convex..... 8
8. Tarsal joints all narrow, joint 4 feebly lobed; head not excavated. Indo-Malaya.....
**Carphuroides** Champion
 Tarsal joints 2-4 or 3 and 4 dilated and bilobed..... 9
9. Prothorax constricted posteriorly into a narrow neck and deeply excavated before the base; head excavated. Australia, New Guinea, Moluccas.....**Neocarphurus** Lea
 Prothorax only moderately constricted at the base..... 10
10. Head (male) usually not excavated; elytra distinctly punctate. Australia, New Guinea, Indo-Malaya.....**Carphurus** Erichson
 Head (male) strongly excavated; elytra glabrous or nearly so. Australia.....
**Helcogaster** Boheman
11. Antennae distinctly 11-segmented (a few 9-segmented). **Oloceres**..... 12
 Antennae apparently 10-segmented, the second segment concealed within the distal end of the first. **Entomoceres**..... 77

12. Males with the second protarsal segment simple. 13
 Males with the second protarsal segment prolonged in a free lobe over the third.
Attalaires. 44
13. Antennae inserted at the anterior border of the front; labrum indistinct or very narrow 14
 Antennae inserted nearer to the eyes than to the anterior border of the head. **Malachiaris.** 60
14. Front excavated or spined in the males. **Troglopires.**..... 15
 Front normal or slightly depressed, without spines. **Colotaires.**..... 26
15. Anterior tarsi 5-segmented in the male..... 16
 Anterior tarsi 4-segmented in the male..... 23
16. Antennae flabellate in male, pectinate in female. Persia.....**Condylops** Redtenbacher
 Antennae not flabellate or pectinate..... 17
17. Maxillary palpi with terminal segment securiform..... 18
 Maxillary palpi with terminal segment not securiform..... 19
18. Prothorax elongate, constricted posteriorly, anterior portion gibbous. South Africa.
**Chalichorus** Erichson
 Prothorax transversely cordate. South Africa.....**Chalichoroides** Champion
19. Maxillary palpi with terminal segment oblong-attenuate, the tip acuminate or very narrowly truncate..... 20
 Maxillary palpi with terminal segment oval, strongly truncate..... 22
20. First protarsal segment (male) with a rounded protuberance on the inner side; labrum deflexed, truncate. U. S. A. (Mississippi, Texas).....**Nodopus** Marshall²
 First protarsal segment simple..... 21
21. Tarsi very long; elytra abbreviated; both sexes apterous. Mediterranean.....
**Brachemys** Abeille de Perrin
 Tarsi short; elytra long in male, slightly abbreviated in female. Mediterranean.....
**Cephaloncus** Westwood
22. Tarsi short, densely pilose beneath; labrum truncate; both sexes alate. South and East Africa, India, China.....**Hedybius** Erichson
 Tarsi longer, the pubescence normal; females apterous. South Africa.....
**Dinometopus** Gorham
23. Elytra abbreviated. Mediterranean.....**Callotroglops** Abeille de Perrin
 Elytra covering the abdomen or nearly so..... 24
24. Prothorax angularly produced anteriorly. South Africa.**Philhedonus** Gorham
 Prothorax normal..... 25
25. Last segment of maxillary palpi strongly truncate. Mediterranean, South Africa, Central Asia.....**Troglops** Erichson
 Last segment of maxillary palpi fusiform, scarcely truncate. Mediterranean.....
**Psiloderes** Peyron

²Marshall, M. Y. 1951. Proceedings California Academy of Sciences, 4th series, 27:92.

26. Antennae 9-segmented; tarsi 5-segmented; elytra broad, covering the abdomen. South America.....**Tucumanius** Pic
Antennae 11-segmented..... 27
27. Male protarsi 4-segmented..... 28
Male protarsi 5-segmented..... 31
28. First antennal segment (male) abnormally dilated; front (male) transversely divided, the anterior portion flat, the posterior convex. South Africa.....
.....**Colpometopus** Abeille de Perrin
First antennal segment normal; front not so divided..... 29
29. First antennal segment (male) with a long tooth at the base; joints 3 and 4 of maxillary palpi enlarged, 3 globular, 4 triangular; prothorax strongly narrowed posteriorly; elytra covering the abdomen. U. S. A.....**Temnosophus** Horn
First antennal segment normal; joints 3 and 4 of maxillary palpi enlarged and deformed..... 30
30. Prothorax convex, cordate; both sexes apterous; elytra long, humeri obsolete. South Africa.....**Olisterarthus** Champion
Prothorax transverse; humeri distinct; alate (a few females apterous). Mediterranean, South Africa, South Russia, India, China, Mexico.....**Colotes** Erichson
31. Tarsi apparently 4-segmented, the third segment bilobed, the fourth minute, as in **Chrysomelidae**..... 32
Tarsi distinctly 5-segmented..... 34
32. First segment of posterior tarsi (male) with a long spine; last segment of maxillary palpi narrowly truncate; labrum rounded; claws without membranes. South America.....**Cryptotarsus** Kirsch
Posterior tarsi without spine..... 33
33. Elytra covering the abdomen; last joint of maxillary palpi oval, narrowly truncate. South and Central America.....**Dromanthus** Gorham
Elytra short, four abdominal segments exposed; labrum truncate; last joint of maxillary palpi acuminate; claws with short membranes. South America.....**Lemphus** Erichson
34. Elytra (male) without appendices..... 35
Elytra (male) appendiculate..... 42
35. Elytra abbreviated..... 36
Elytra covering the abdomen..... 38
36. Abdomen with long marginal hairs. U. S. A.....**Chaetocoelus** Leconte
Abdomen without long marginal hairs..... 37
37. First antennal segment abnormally enlarged (male); prothorax strongly dilated anteriorly, constricted and flattened posteriorly. New Guinea.....**Falsolaius** Pic
First antennal segment normal; prothorax simply transverse. Mediterranean. South Africa.....**Pelochrous** Mulsant and Rey
38. Antennal segments 8 to 11 forming a club; first protarsal segment (male) prolonged in a spine; last joint of maxillary palpi securiform. Usambara.....**Malachiolemphus** Pic
Antennae not clubbed..... 39

39. First segment of all the tarsi minute; last joint of maxillary palpi obconic. Australia.
 ----- **Hypattalus** Blackburn
 First segment of tarsi normal..... 40
40. Maxillary palpi with last joint oval, narrowly truncate. Palestine.....**Abeilla** Sahlberg
 Maxillary palpi with joints 3 and 4 enlarged and deformed..... 41
41. Elytra explanate laterally; anterior trachanters elongate. South Africa.....
 -----**Sphinginopalpus** Pic
 Elytra not explanate; trochanters normal. East and Central Africa.....
 -----**Pseudocoletes** Abeille de Perrin
42. Elytral appendices spiniform; females apterous; last joint of maxillary palpi narrowly truncate. Mediterranean, North Europe, South Russia, India, Tibet.....
 -----**Charopus** Erichson
 Elytral appendages auriculate; last joint of maxillary palpi narrowly truncate; both sexes alate..... 43
43. Mediterranean, India, Central Asia, Japan.....**Hypebaeus** Kiesenwetter
 North America.....**Pseudebaeus** Horn
44. Antennae 9-segmented; last joint of maxillary palpi narrow, subacuminate; elytra strongly widened posteriorly, short in female, not appendiculate. Central and South America.....**Pseudattalus** Champion
 Antennae 11-segmented..... 45
45. Antennae inserted between the eyes; last joint of maxillary palpi fusiform, narrowly truncate; elytra with erect hairs, the apex plicate and with a minute linear appendage. Mediterranean.....**Axinotarsus** Motschulsky
 Antennae inserted anterior to an ideal preocular line..... 46
46. Elytra abbreviated in both sexes..... 47
 Elytra covering the abdomen or nearly so..... 49
47. Antennae (male) flabellate; maxillary palpi with terminal joint subcylindrical, truncate, prothorax transverse; body covered with semierect hair; females apterous. South Africa.....**Anexodes** Abeille de Perrin
 Antennae serrate..... 48
48. Size not over 2 mm.; sutural margins of elytra in contact almost to tips. U. S. A., Mexico.....**Attalusinus** Leng
 Size 3 mm. or more; sutral margins of elytra diverging from near the base. California.....**Endeodes** Leconte
49. Front of head excavated or spined..... 50
 Front of head convex or slightly impressed..... 53
50. Prothorax unidentate laterally, narrowed posteriorly; antennal segments 1, 3, 4,, and 5 (male) thickened; last joint of maxillary palpi oblong-conic, truncate; tarsal claws lobed; females apterous. South Africa.....**Matopius** Champion
 Prothorax not dentate..... 51
51. Prothorax extended in a bilobed hood over the head; last joint of maxillary palpi slender, conical; elytra simple. South Africa.....**Eucerapheles** Champion
 Prothorax not extended over the head..... 52

52. Antennal segments 5 and 6 (male) abnormally large; last joint of maxillary palpi cylindrical; labrum subquadrate. South Africa. **Illops** Erichson
 Antennal segments 5 and 6 are normal; last joint of maxillary palpi oval, truncate; labrum truncate; tarsi short, densely pilose beneath. South and East Africa, India, China. **Hedybius** Erichson
53. Prothorax constricted at the base 54
 Prothorax not constricted at the base 55
54. Elytra (male) with a short, broad appendix, impressed at the tip; surface with erect hairs. India. **Indiattalus** Pic
 Elytra not appendiculate and without erect hairs. Mediterranean, Mexico. **Sphinginus** Mulsant and Rey
55. Elytra with erect hairs, as well as decumbent pubescence 56
 Elytra without erect hairs 59
56. Antennae with "apex" strongly dilated; last joint of maxillary palpi robust, subtruncate; elytral apices subtumid; otherwise as in **Attalus**. East Africa. **Lusingattalus** Pic
 Antennae with apex not dilated 57
57. Eyes in male very large; antennae (male) ramose; last joint of maxillary palpi slender, subacuminate; elytra without appendages. India. **Malachiomimus** Champion
 Eyes in male not unusually large 58
58. Elytra appendiculate, each appendage a strong, recurved spine, apparently (but not actually) 3-segmented; antennae (male) strongly serrate; last joint of maxillary palpi ovoid, obtuse. South and West Africa. **Urodactylus** Thomson
 Elytra very rarely appendiculate and then not as above; last joint of maxillary palpi fusiform, narrowly truncate. Mediterranean, South and East Africa, India, China, Japan, Siberia, North, Central and South America. **Attalus** Erichson
59. Antennal segment 4 enlarged, triangular; elytra obovoid, nearly twice as wide posteriorly as at base; prothorax orbicular; otherwise presumably as in **Ebaeus**. India. **Periebaeus** Gorham
 Antennal segment 4 normal; last joint of maxillary palpi ovate, broadly truncate; elytral appendages auriculate. Mediterranean, South and East Africa, India, Japan, Siberia, South America. **Ebaeus** Erichson
60. Antennae 9-segmented; tarsi 5-segmented; elytra broad, covering the abdomen. South America. **Tucumanus** Pic
 Antennae 11-segmented 61
61. Male protarsi 4-segmented 62
 Male protarsi 5-segmented 63
62. Front (male) transversely divided, the anterior portion flat, the posterior convex; first antennal segment (male) abnormally dilated. South Africa. **Colpometopus** Abeille de Perrin
 Front not transversely divided; head long; first antennal segment normal. Western U. S. A., Mexico. **Trophimus** Horn
63. Anterior tibiae (male) with a large, deep impression near the apex, on the anterior face; middle tibiae enlarged, conic, with a rounded fossa near the apex, on the inferior side, the posterior border enlarged and explanate below, terminating in a

- strong, obtuse tooth; prothorax with a broad, deep, transverse impression posteriorly. Siberia.....**Mezopezus** Jakobson
Tibiae not modified as above; prothorax not transversely impressed..... 64
64. Claws without membranes; antennae inserted between the eyes; last joint of maxillary palpi fusiform, acuminate; thorax transverse; elytra without erect hairs, appendiculate (male); females apterous. Syria, Iraq, Iran.....**Chionotopus** Abeille de Perrin
Claws with distinct membranes..... 65
65. Prothorax with posterior angles prolonged, the inner margin of the prolongation irregularly lacinate. India.....**Incisomalachius** Pic
Posterior angles of prothorax not prolonged..... 66
66. Fourth tarsal joints all dilated or bilobed..... 67
Fourth tarsal joints normal..... 69
67. Fourth tarsal joints dilated "en palette"; prothorax gibbous on the disc; elytra with erect hairs and prominent lateral carinae. Madagascar.....**Falsoanthocomus** Pic
Fourth tarsal joints bilobed..... 68
68. Head posteriorly constricted into a narrow, short neck; mandibles bifid at apex; last joint of maxillary palpi enlarged, securiform; antennae filiform. Chile.....
.....**Nematocerus** Solier
Head not abruptly narrowed behind the eyes; mandibles bidentate at apex; palpi and antennae as in **Nematocerus**. Chile.....**Brachidia** Solier
69. Head excavate; elytra with erect hairs, the apex plicate and spinose; tip of abdomen with a long appendage on each side. India.....**Lobatomixis** Pic
Head not excavate, abdomen without appendages at the tip..... 70
70. Elytra abbreviated, with short humeral carinae; prothorax constricted posteriorly. New Guinea.....**Falsolaius** Pic
Elytra covering the abdomen or nearly so..... 71
71. Second male protarsal segment enlarged and slightly prolonged over the third (but with no free lobe as in **Attalus**); male with ventral abdominal pits; head long. Western U. S. A., Mexico.....**Tanaops** Leconte
Second protarsal segment normal; male without ventral pits..... 72
72. Elytra laterally margined; last joint of maxillary palpi truncate; elytra simple and without erect hairs. Celebes.....**Dromanthomorphus** Pic
Elytra not laterally margined..... 73
73. Prothorax constricted at the base and at least as long as broad; otherwise as in **Malachius**. Mediterranean.....**Cyrtosus** Motschulsky
Prothorax not constricted at the base..... 74
74. Last joint of maxillary palpi broadly truncate..... 75
Last joint of maxillary palpi acuminate or narrowly truncate..... 76
75. Elytra (male) appendiculate; erect hairs absent; females apterous. Mediterranean, India, Mongolia.....**Cerapheles** Mulsant and Rey
Elytra simple, otherwise presumably as in **Cerapheles**. India.....**Pseudocerapheles** Pic
76. Antennae inserted between the eyes; front at times excavate or spined; elytra at times appendiculate, with or without erect hairs. Mediterranean, South and West Africa, India, Siberia, China, Japan, Philippines, North America.....
.....**Malachius** Fabricius

- Antennae inserted in front of an ideal preocular line; elytra without erect hairs, usually appendiculate (male). Mediterranean,, South Africa, India, China, North, Central and South America.....**Anthocomus** Erichson
77. Protarsi (male) apparently 4-segmented; second antennal segment (the true third) in male usually enlarged and deformed. North, Central and South America, Turkistan, Siberia, Manchuria, Zanzibar.....**Collops** Erichson
Protarsi (male) distinctly 5-segmented..... 78
78. Antennae flabellate (male) or pectinate (female), the second segment (male) "long and broadly triangular"; prothorax bisulcate on the disc. Air, French Africa.....
.....**Airomalachius** Pic³
Antennae serrate..... 79
79. Habitus ant-like; prothorax elongate, apex bulbous, base constricted, bituberculate; elytra strongly inflated, with base constricted and humeri spinose; last joint of maxillary palpi elongate-ovoid, truncate. Ceylon, Java, Luzon.....
.....**Myrmecophasma** Burgeois
Habitus not ant-like..... 80
80. Antennae (male) with segments 2 and 3 "greatly dilated and subconnate"; male tarsi simple. East and Central Africa.....**Heterolaius** Champion
Antennae (male) simple or with only segment 2 dilated..... 81
81. Last joint of maxillary palpi filiform..... 82
Last joint of maxillary palpi securiform..... 83
82. Protarsi (male) simple; antennae (male) with second segment usually enlarged and deformed. Indo-Malaya, Philippines, Australia, Formosa, New Guinea, China, Japan, East and Central Africa, Marianas, Christmas Island.....**Laius** Guerin
Protarsi (male) with second segment prolonged over the third; antennae simple. Siberia.....**Simoderus** Abeille de Perrin
83. Protarsi (male) with second segment prolonged; antennae simple. Mediterranean, all of Africa, South Russia, China, Indo-Malaya, Philippines.....**Apalochrus** Erichson
Protarsi (male) simple..... 84
84. Antennae simple; elytra oblong. Europe, South Russia, Siberia, East Africa.....
.....**Paratinus** Abeille de Perrin
Antennae (male) with second segment deformed; elytra hemispherical; apterous. Ceylon.....**Zelotypus** Abeille de Perrin

It had been my intention to close this paper at the end of the key, but I find it necessary to make certain remarks concerning several of the genera.

Pseudebaeus G. H. Horn. Horn (1872) established this genus for four North American species which apparently possess the same generic characters as the genus *Hypebaeus*, established by Kiesenwetter (1863). Horn gave no real description of the genus, merely stating his reasons

³Pic, M. 1950. Memoires de l'Institut Francais d'Afrique Noire, No. 10, p. 145.

for considering it to be distinct from *Ebaeus* and *Anthocomus*. He made no mention of *Hypebaeus*, defined nine years previously, and it appears reasonable to assume that he was not acquainted with this genus. I have examples of the two most common European species of *Hypebaeus*, *flavicollis* Erichson, which can probably be considered as the genotype, and *flavipes* Fabricius. An examination of these fails to disclose any differences between them and the North American species of *Pseudebaeus* which could be regarded as of generic significance. They are all small insects, from 1 to 2.5 mm. in length, blackish piceous in color, with the thorax in some cases and the apical third or fourth of the elytra in most, yellowish testaceous. The elytra in the males are usually narrowed and produced toward the apex and the peculiar structure of the elytral appendages appears to be identical. I conclude that *Pseudebaeus* should be suppressed and the species now included therein be transferred to *Hypebaeus* (NEW SYNONYMY). It is not surprising to find that a genus which is so widely distributed throughout the Old World as *Hypebaeus* should also occur in North America.

Acletus Leconte. Marshall (1949) recognized this genus as distinct from *Attalus*, on account of its strongly pectinate antennae, in the male, also being influenced by the fact that its very different habitus from all other North American *Attalus* had caused its single species, *nigrellus* Leconte, to be redescribed, by R. Hopping, as *Microlipus falli*. Subsequent study of the world genera in the family shows that there are numerous genera which contain species with both serrate and pectinate or flabellate antennae and that this cannot properly be considered a generic character. Horn was evidently correct when he transferred the species *nigrellus* to *Attalus*, in 1872.

Flabellattalus Pic. which was originally proposed by Pic (1923) as a subgenus of *Attalus*, but recognized by Greiner (1937) as a valid genus, is evidently a case simliar to that of *Acletus* and should also be suppressed.

Periebaeus Gorham (1895 p. 320). This genus apparently was never described, the name alone being published by Gorham in connection with his species *Periebaeus punctatus*. However, since it was published prior to Jan. 1, 1931, the genus must stand, described or not, according to the International Rules (Article 25). It was apparently separated from *Ebaeus* by the enlarged fourth antennal segment, since the description of *punctatus* does not mention any other distinguishing character which could be given generic weight. The type of the species is, in all probability, in the British Museum and the genus should be adequately de-

scribed by someone who has access thereto. It has been assumed, in the above key, that the generic characters not mentioned are the same as in the genus *Ebaeus*.

Mezopezus Jakobson. Since the description of this genus, three lines long in the original, is difficult to obtain, "Zhuki Rossii," usually listed as "Käfer Russlands," not being found in the Library of Congress or in those of several of the larger museums in this Country, and since it is in Russian, with which language the majority of entomologists, including the present author, are not familiar, I am giving herewith a translation of the original description. "The second segment of the antenna is distinctly visible from below. The forelegs of the male have an impression on the inner side, before the apex; the middle legs are broadened, they have on the inner side at the top a dentate projection with impressions below." The clearer description of the tarsal structure, given in the above key, is from Peyron's translation into French (1877), of Solsky's original description of *Apalochrus oberti*, the type species of *Mezopezus*. It is possible that the genus should be placed in the *Colotaires*, but the peculiar structure of the tibiae, which are apparently fossorial in nature, should serve for its easy identification.

The original descriptions of several of the other genera are so very brief, at times only three or four lines, and lacking in mention of most of the generic characters, that it is difficult to place them accurately in the key. Often, in such cases, the description of the genotype is also very brief, with no additional information except as to color and surface sculpture. This situation has probably resulted in some errors in the key which, it seems, can only be corrected by someone who is in a position to examine the isolated types.

Finally, I wish to express my thanks to Monsieur Maurice Pic, of Digoin, France, without whose kind cooperation the present essay would not have been possible. He not only furnished me with reprints of the articles containing most of his generic descriptions, but, where such reprints were no longer available, and in spite of advanced age, he laboriously copied, in longhand, several of his descriptions of genera and genotypes.

REFERENCES

ABEILLE DE PERRIN

1890. pp. 181-260; 331-420; 567-680.

1891. Malachides d'Europe et pays voisins. Ann. Soc. En. France, pp. 115-230, 405-446.

BLACKWELDER, R. E.

1945. Check List of Coleopterous Insects of Mexico, Central America, West

Indies and South America [Malachiidae]. Bull. U. S. Nat. Museum, No. 185, Part 8, pp. 374-377.

CHAMPION, G. C.

1914. Revision of the Mexican and Central American Malachiidae and Melyridae. Trans. Ent. Soc. London, pp. 13-127.

GORHAM, H. S.

1895. List of the Coleoptera in the collections of H. E. Andrews Esq. from India and Burma, with descriptions of new species and notes. Ann. Soc. Ent. Belgique, 39:293-330.

GREINER, J.

1937. Coleopterorum Catalogus, pars. 159, pp. 1-199, Frink, Hague.

HORN, G. H.

1872. Synopsis of the Malachiidae of the United States. Trans. American Ent. Soc., 4:109-127.

JAKOBSON, G. C.

1911. Käfer Russlands 2:698.

KIESENWETTER

1863. Naturgeschichte Insect. Deutschland, 4:610.

LEA, A. M.

1909. Revision of the Australian and Tasmanian Malachodermidae. Trans. Ent. Soc. London, p. 47.

LENG, C. W.

1920. Catalogue of Coleoptera of America, North of Mexico, pp. 145-146, Mount Vernon, N. Y.

MARSHALL, M. Y.

1949. Studies in the Malachiidae II. Entomologia Americana, vol. 28 (new series): 121.

PEYRON, M. E.

1877. Etudes sur les Malachiides d'Europe et du Bassin de la Mediterranee. Abeille, 15:1-312.

1923. Notes Diverse et Corrections sur les Malachides d'Afrique. Soc. Zool.

PIC, M.

genera of Coleoptera. Sci. Trans. Roy. Dublin. Soc. Ser. 2, 3:157, pl. 4, fig. 20.